

**BY ORDER OF THE  
SECRETARY OF THE AIR FORCE**



**AIR FORCE INSTRUCTION 11-290**

**11 APRIL 2001**

**AIR FORCE MATERIEL COMMAND  
Supplement 1**

**25 JUNE 2002**

***Flying Operations***

**COCKPIT/CREW RESOURCE MANAGEMENT  
TRAINING PROGRAM**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFD 11-2, *Aircraft Rules and Procedures*. It establishes the USAF aircrew training program that supports Air Force objectives and is applicable to all units assigned to or gained by major commands (MAJCOMs) and applies to commanders, operations supervisors, and aircrews assigned or attached to all flying activities of these commands. Lead commands will publish guidance in the specific mission design series (MDS), 11-2 MDS specific vol. 1 and vol. 2, regarding CRM requirements, currency, tracking, and evaluation. If MAJCOMs publish supplements to AFI 11-290, the supplements will define implementation of CRM program, but may not be less restrictive. MAJCOMs will coordinate their supplements with HQ USAF/XOOT. This instruction establishes requirements for developing and managing tailored, mission-specific Cockpit/Crew Resource Management (CRM) training programs and requires CRM training for all Air Force aircrew members. MAJCOMs, field operating agencies (FOAs) and HQ USAF direct reporting units (DRUs) are responsible for establishing and managing their respective programs in accordance with this instruction. CRM programs are mandatory for aircrew members and historically have been geared toward the operational flying environment, the potential exists to adapt fundamental program principles to any task or functional area requiring cooperative or interactive time critical efforts. **Attachment 1** provides a glossary of references, acronyms, and terms used in this instruction. AF Form 4031, **CRM Skill Criteria Training/Evaluation Form** lists specific CRM skills which measure the effectiveness of CRM training.

Submit suggested improvements to this instruction on AF Form 847, **Recommendation for Change of Publication**, through training channels, to HQ/USAF/XOOT, 1480 Air Force Pentagon, Washington, DC 20330-1480. This is a new instruction replacing AFI 36-2243, Cockpit/Crew Resource Management Program. Requests for waivers to this instruction should be directed to **Chief Operations Training Division**,

**HQ AF/XOOT, 1480 Air Force Pentagon Washington, DC 20332-1480, DSN 227-7706, Commercial (202) 697-7706, FAX DSN 225-1489, FAX Commercial (202) 695-1489.** MAJCOMs should accept another MAJCOM or Department of Defense (DoD) training only if: it meets the intent of this instruction, a source document is provided, and MAJCOM determines training is equivalent. This publication applies to the Air National Guard (ANG) when published in the ANGIND 2.

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(AFMC) This supplement does not apply to the Air National Guard or US Air Force Reserve units and members.

**AFI 11-290, 11 April 2001, is supplemented as follows:**

### ***SUMMARY OF REVISIONS***

This revision incorporates IC 2001-1 and replaces the term *discipline* with *flight discipline* in paragraph **6.1.4**. This revision also provides a definition for *flight discipline* in the Terms section in **Attachment 1**. The entire text of IC 2001-1 is at **Attachment 2**. Changed or revised material is indicated by a bar (|).

### ***Section A—CRM Program Description***

**1.** The Air Force CRM program provides crewmembers with performance-enhancing knowledge and skills directly applicable to their roles in the aerospace mission of the Air Force. CRM training is a key component of a combined effort to identify and manage the conditions that lead to error. The CRM program begins with crewmembers' initial Air Force flying training and is continuously built upon throughout their operational careers. Training objectives will be tailored to the knowledge and skill level of the aircrew member. As the aircrew member becomes more proficient, CRM training should emphasize performance skills more than academic objectives. Lead commands define "crewmember" in terms of their own operational mission requirements.

**1. (AFMC)** AFMC defines crewmember, for the purpose of CRM, as all pilots, navigators, flight test engineers, flight engineers, loadmasters, and boom operators. DFOs may designate other personnel (such as test conductors) as crewmembers for the purpose of this supplement.

1.1. The CRM program goals are:

1.1.1. Maximize operational effectiveness and combat capability.

1.1.2. Preserve Air Force personnel and material resources.

1.2. CRM training will be designed and managed to accomplish the following objectives:

1.2.1. Develop aircrew skills in recognizing and responding to the conditions that lead to aircrew error.

1.2.2. Develop aircrew proficiency in CRM skills.

### **2. Program Requirements.**

2.1. Lead Command guidance will:

2.1.1. Establish training frequency, required attendees, and method for tracking crewmember currencies.

2.1.1. (AFMC) For the purpose of AFMC, initial CRM training is defined as CRM training that was either conducted as part of initial flight training (i.e., ATC/AETC), or the first academic CRM training that a crewmember received. If units receive crewmembers that have not received any type of initial CRM training, they will require CRM academics with emphasis on initial CRM skills and concepts. CRM academic training will be accomplished every three years. Continuation training may include either ground training or simulator/flying training. Aircrews and those aircrews designated by the DFO (IAW para 1) requiring CRM will accomplish a minimum of one CRM continuation training event every 12 months. CRM academic and continuation training events will be documented and tracked through AFORMS. For small flying organizations (with less than four primary crewmembers) which do not utilize AFORMS, CRM events may be tracked in training folders.

2.1.2. Use CRM skills criteria, AF Form 4031, to establish the skills training/evaluation criteria.

2.1.2. (AFMC) CRM skills will be evaluated during all initial and recurring flight evaluations IAW applicable AFI 11-202 series publications. Unit program managers will develop procedures to ensure that flight evaluations are trended in which CRM skills received a "Q-" or "U." Units will use AF Form 4031, **CRM Skills Criteria Training/Evaluation**, for CRM skills training and course evaluation. If used, unit CRM program managers will compile results of the form for trend analysis and provide feedback to the contractor/training program. Disposition of AF Form 4031 will be IAW AFMAN 37-139, *Records Disposition Schedule*.

2.1.3. (Added-AFMC) The unit DFO will determine if CRM training completed in a previous command satisfies the unit's requirements. In this case, non-AFMC CRM courses may count as fulfilling the requirements of AFI 11-290 and this supplement and will be documented according to the applicable AFI 11-202/ 11-2FT series publications. CRM training completed during simulator refresher training satisfies the requirement of this supplement

2.2. Each MAJCOM, FOA and DRU CRM training program must:

2.2. (AFMC) The AFMC-sponsored CRM training is provided by contractor(s) or unit CRM program managers who have completed AFMC approved facilitator training, and targets the unique AFMC flight test mission. The training focuses on crew management with emphasis on the interaction between flight crews and their supporting test teams.

2.2.1. Provide training to develop and improve CRM knowledge and skills based on paragraph 6. and AF Form 4031.

2.2.2. Be updated annually to incorporate: "real-world" operational experiences, mishap data, research data, critiques, and flight evaluation trends.

2.2.3. Identify the process for gathering, analyzing and incorporating trend data from MAJCOMs into existing training and evaluation programs.

2.2.4. MAJCOM, FOA and DRU CRM managers will insure continuity of course content with AETC's introductory courses.

2.3. CRM skills will:

2.3.1. Be integrated into flight briefings and debriefings.

2.3.1. (AFMC) CRM will be briefed prior to and following all flights. Consult Attachment's 3 and 4 for topics that may be included as part of the pre and post mission briefing.

2.3.2. Be integrated into training syllabi.

2.3.2. (AFMC) CRM skills and behaviors will be included in all initial, requalification, mission and upgrade training syllabi as outlined in the applicable AFI 11-202 series publications.

2.3.3. Be evaluated during initial qualification and recurring evaluations.

### ***Section B—Program Management***

**3. Top-Level Direction.** Operational control of the content and delivery of Air Force CRM programs will rest within the MAJCOM, FOA and DRU operations directorates. MAJCOM, FOA and DRU safety and surgeon general directorates will act as advisors and respective subject matter experts to the MAJCOM, FOA and DRU operations directorates for providing input to course content and delivery. The USAF CRM Steering Committee standardizes CRM program requirements, terminology, and core syllabus. Each functional area using the CRM training concept must be represented on the USAF CRM Steering Committee. The committee will meet annually.

**3. (AFMC)** Operational control of the CRM program is delegated to Chief, Stan/Eval Division, HQ AFMC/DOV.

#### **3.1. Steering Committee Membership:**

3.1.1. HQ USAF director of operations training (XOOT Chair).

3.1.2. HQ AETC/DOF.

3.1.3. HQ ACC/DOT.

3.1.4. HQ AMC/DOT.

3.1.5. HQ AFSOC/DOT.

3.1.6. HQ PACAF/DOT.

3.1.7. HQ USAFE/DOT.

3.1.8. ANG/XOO.

3.1.9. HQ AFRC/DOT.

3.1.10. HQ AFMC/DOV.

3.1.11. HQ AFSPC/DOO.

3.1.12. Air Force Academy Operations Support Squadron (34 OSS).

3.1.13. War Fighter Training Research Division Armstrong Labs (AFRL/HEA) (advisor).

3.1.14. HQ AFSC/SEF (advisor).

3.1.15. Air Force Aerospace Physiology (AFMOA/SGOO) (advisor).

3.1.16. Other technical advisors as required.

### **4. USAF CRM Working Group.**

4.1. Action officers representing each of the members of the Steering Committee constitute the USAF CRM Working Group. The working group reviews program execution and policy issues and

will meet as required. Mandatory topics will include Training Continuum, Standardization, and Research and Development needs. Working group members are:

- 4.1.1. HQ USAF/XOOT CRM Program Manager (Chair).
- 4.1.2. MAJCOM, FOA and DRU CRM program managers.
- 4.1.3. MAJCOM CRM advisors (SE, SG, etc.--maximum two per MAJCOM).
- 4.1.4. HQ AFSC/SEFF and SEPA representatives (technical advisors).
- 4.1.5. HQ AFFSA/XOFD representative (technical advisor).
- 4.1.6. AFMOA/SGOO (technical advisor).
- 4.1.7. AFRL/HE (technical advisor)
- 4.1.8. Other technical advisors as required.

**5. MAJCOM CRM Programs.** Individual MAJCOMs, FOAs and DRUs manage their programs as follows:

5.1. CRM Program Manager. Each MAJCOM, FOA and DRU will appoint a CRM program manager within their operations or equivalent directorate. This individual should be a rated officer whose primary duty should be the management of their MAJCOM's respective CRM training program. CRM program managers should attend CRM industry conferences to keep abreast of current CRM technology and practices. The program manager is responsible for:

5.1. (AFMC) The AFMC program manager is appointed by HQ AFMC/DOV. All AFMC flying locations will designate a primary and alternate CRM program manager to implement the CRM program.

- 5.1.1. Ensuring Lead Command's AFI 11-2 MDS specific vol. 1 and vol. 2s provide CRM policy guidance.
- 5.1.2. Implementing Lead Command CRM policy guidance.
- 5.1.3. Ensuring each applicable CRM training phase (paragraph 8.) is implemented and evaluated.
- 5.1.4. The forwarding of AF Form 4031, trend data to CRM Instructors/Facilitators.
- 5.1.5. Ensuring a system is in place to collect performance data (i.e. Stan/Eval trends (Skills criteria), mishap reports and HATRs, and Inspector General reports) and send to CRM instructors and facilitators.
- 5.1.6. Evaluating contractor implementation of CRM program objectives. Where discrepancies are identified, initiate corrective actions.
- 5.1.7. Ensuring Quality Assurance Representatives (QARs) and IGs have current evaluation guidance to evaluate CRM program objectives. Where discrepancies are identified, initiate corrective actions.
- 5.1.8. Providing feedback to CRM Working Group regarding program status covering: Training Continuum, Standardization, and Research and Development needs.

5.1.9. Interacting with MAJCOM, FOA or DRU CRM advisors (Safety, Aerospace Physiology, etc.) ensuring CRM training is effective and minimizes redundancies with other programs given by Safety, Aerospace Physiology, etc.

5.2. Command Steering Committees. MAJCOMs, FOAs and DRUs may establish command steering committees to identify the most effective methods for delivering and administering CRM programs. Command steering committees identify the means and resources for effectively managing the CRM program. The MAJCOM, FOA or DRU commander for operations determines the appropriate Chair for their Steering Committee. These Steering Committees develop consolidated command positions on issues presented before the USAF CRM Steering Committee. Each MAJCOM, FOA and DRU CRM Steering Committee should include:

5.2.1. Safety and aerospace medicine functional managers.

5.2.2. Representatives of other functions as required (i.e., IN, LG, Operations, etc.).

### ***Section C—Program Development***

**6. Core CRM Curriculum .** CRM knowledge and skill objectives will be tailored to fit the unique characteristics of each primary mission. Navy Aircrew Coordination Training (ACT) equivalent terms are in parenthesis.

**6. (AFMC) AFMC Core CRM Curriculum.** Attachment 3 outlines the AFMC core curriculum. It will be included as part of the HQ AFMC/DOV approved continuation and academic CRM training plan.

6.1. Managing Core Curriculum. CRM will be integrated into existing training programs to the maximum extent possible.

6.1.1. Situational Awareness. (Situational Awareness) Includes knowledge and skill objectives for preventing the loss of situational awareness, skills for recognizing the loss of situational awareness, and techniques for recovering from the loss of situational awareness.

6.1.2. Crew Coordination/Flight Integrity (Leadership and Assertiveness). Knowledge and skill objectives covering the impact on aircrew performance of command authority, leadership, responsibility, assertiveness, conflict resolution, hazardous attitudes, behavioral styles, legitimate avenues of dissent, and team-building.

6.1.3. Communication (Communication) Includes knowledge of common errors, cultural influences, and barriers (rank, age, experience and position). Skills will encompass listening, feedback, precision and efficiency of communication with all members and agencies (i.e., Crewmembers, Wingmen, Weather, ATC, Intelligence, etc.).

6.1.4. Risk Management/Decision Making (Decision Making). Includes risk assessment, the risk management process, tools, breakdowns in judgment and *flight* discipline, problem-solving, evaluation of hazards, and control measures.

6.1.5. Task Management (Adaptability/Flexibility). Includes establishing priorities, overload, underload, complacency, management of automation, available resources, checklist discipline, and standard operating procedures.

6.1.6. Mission Planning/Debrief (Mission Analysis). Includes pre-mission analysis and planning, briefing, ongoing mission evaluation, and post mission debrief. Also, specific tools and techniques to be used in operational and training missions.

**7. Supporting Information .** HQ AFSC, MAJCOM, FOA, and DRU safety staffs will screen mishap reports for human performance errors. This safety information should be available for use at all phases of CRM training, either as part of simulator scenarios or for CRM case studies. The safety mishap report information must be sanitized according to AFI 91-204, *Safety Investigations and Reports*. Current safety mishap “For Official Use Only” and sanitized “Limited Use” information will be provided to CRM program managers in a timely manner by command/unit safety staff(s) according to AFI 91-204. The safety mishap report information provided may be retained as part of the CRM training program active files until the training value is exhausted. The safety information will then be destroyed or returned to the safety staff that provided it.

**7. (AFMC)** HQ AFMC/SEF will forward to HQ AFMC/DOV all safety mishap reports in which human performance was a contributing factor(s) to the mishap. All levels within the command will ensure the provisions of AFI 91-204, *Safety Investigation and Reports*, are complied with in regards to releasing privileged information. The AFMC CRM program manager will forward these sanitized reports to AFMC flying organization CRM program managers for incorporation into their local academic and continuation training program.

**8. CRM Training Phases.** Five phases follow crewmembers through their professional development. MAJCOM, FOA, and DRU participation in course development is essential to training effectiveness and smooth transition from one phase to the next. Each phase of training should prepare individuals to apply the knowledge and skills acquired in their specialty and motivate participants for the next phase of training. This training should utilize the most effective training methods and avoid simply lecturing to students. Video feedback should be used for debriefing. If video recordings or other feedback tools are used, they will be immediately destroyed or erased upon completion of the feedback session to encourage honest student inputs in a non-threatening learning environment. Integrate skills identified in AF Form 4031.

8.1. Introductory or Awareness Training. This may be a crewmember's first exposure to CRM. It is normally conducted in a formal training environment by AETC. Trainees learn standard CRM terminology and core concepts. Lesson plans will include a description of the building block approach to CRM training the individual will participate in throughout their operational career.

8.2. Formal Training Unit (FTU)/Combat Crew Training School (CCTS) CRM Training. Students learn to apply knowledge and skills related to their assigned aircraft. Academic training is complemented during aircraft/simulator training. Emphasis should be placed on preflight planning, briefing, in-flight utilization, and debrief techniques for CRM. This should include a brief review of CRM core concepts paragraph 6.1. Mission Oriented Simulator Training (MOST) sessions or other simulated or actual operational scenarios may be used as an integral part of CRM training. Evaluate students for technical expertise, as well as the skills based on the six core concepts. If aircrew training devices are not available, students should participate in group problem-solving exercises.

8.3. Mission-Specific Continuation Training. MAJCOMs, FOAs and DRUs are responsible for CRM continuation training. This training will reinforce the aircrew's CRM academic knowledge and refocus on skills to accomplish the mission. It also helps aircrews identify and respond to the conditions that lead to error.

8.3. (AFMC) Continuation training may be conducted in the simulator, aircraft or in an academic environment. This training will include the normal complement of applicable air and ground crew associated with each unit's specific mission. Training will be accomplished using the following guidelines:

- CRM scenarios will be briefed prior to the mission following guidance contained in this instruction and developed by the unit.
- For multiplace aircraft with mission/operational support crewmembers assigned, emphasis should be placed on enhancing interaction with the total crew complement during simulated aircraft emergencies (i.e., smoke and fume elimination, egress, etc.).
- For dual placed aircraft, emphasis should be placed on pilot and WSO/FTE interaction during simulated inflight emergencies.
- For single seat aircraft, emphasis should be placed on pilot and ground control/test operations interaction during simulated inflight emergencies.
- Crewmembers may credit an actual aircraft emergency as an annual continuation training event provided that during the debrief crew performance, interaction, CRM skills, and feedback to improve crewmember skills, are thoroughly critiqued and reviewed. For multiplace aircraft, the entire crew must be present during the debriefing.
- During mission debriefing, critique the CRM scenario, crew/pilot performance and interaction, and provide feedback to improve individual and team performance.

8.3.1. Emphasize CRM skills in the mission qualification and continuation training programs so they become inseparable parts of operational practices.

8.3.2. Frequency for recurring CRM continuation training is defined in AFI 11-2 MDS specific vol. 1s. Lead commands are responsible for providing guidance to standardize CRM MDS specific training policy and requirements. All aircrew require Mission-Specific Continuation Training. Separating training by crew position should be avoided. However, it is not mandatory to conduct this training with a complete aircrew.

8.4. Flight Instructor Training. All flight and simulator instructors will complete instructor specific CRM training. This training will normally be accomplished as part of instructor upgrade program. Courseware must build upon the previous blocks of training, both to reacquaint candidates with CRM fundamentals and to maintain continuity of terminology and techniques. MAJCOMs, FOAs and DRUs develop courseware related to instructing and evaluating key skills that apply to command and aircraft-specific missions. Personnel may conduct this training at operational units, flying training units, or a combination, as required. Training will include, but is not limited to, proper use of AF Form 4031.

8.4. (AFMC) All crewmembers upgrading to instructor qualification will be trained in CRM as part of their instructor training syllabus IAW applicable AFI 11-202/11-2FT series publications.

8.4.1. CRM instructors and evaluators must be highly proficient in all CRM skills, and be experts in the recognition, observation, and reinforcement of these skills as they are applied by aircrew members in a mission environment.

8.4.2. CRM instructor or evaluator training will be included into instructor upgrade programs.

8.5. Facilitator Training. Formal CRM academic curricula must be delivered by a trained CRM facilitator. Facilitator training will include training in running exercises, structured crew observation, and effective academic feedback.

8.5. (AFMC) Unit CRM program managers will attend (as training allocation slots become available) an HQ AFMC/DOV approved facilitator course prior to instructing CRM continuation or academic training but no later than one year after assuming duties as the unit CRM program manager. Units who are awaiting training allocation slots may continue to instruct, using their locally developed courseware, until completing HQ AFMC/DOV approved facilitators course. Units will ensure personnel selected to attend this course will have one year retainability as the unit program manager upon graduation. This provision does not apply to those units who receive their CRM training from a contractor.

**9. Data Disposition Schedule.** Data collected using AF Form 4031 must be retained for 6 months. After 6 months data may be destroyed. Disposition approval will be published in AFMAN 37-139 **Records Disposition Schedule**.

**10. Forms Prescribed:** AF Form 4031, **CRM Skills Criteria Training/Evaluation Form** will be used for CRM skills training and CRM evaluation as prescribed in the MAJCOM supplement. The goal is to identify weak areas as trends to improve CRM training before incidents or accidents occur.

**NOTE:**

MAJCOMs, FOAs, and DRUs will determine the primary weapon system for all dual-qualified personnel and will ensure CRM training is oriented toward the primary weapon system.

ROBERT H. FOGLESONG, Lt General, USAF  
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**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 11-403, *Air Force Aerospace Physiological Training Program*

AFI 91-204, *Safety Investigations and Reports*

AFMAN 11-210, *Instrument Refresher Course(IRC) Program*

OPNAV Instruction 1542.7B

***Abbreviations and Acronyms***

**ATD**—Aircrew Training Device

**CRM**—Cockpit/Crew Resource Management

**DRU**—Direct Reporting Unit

**FOA**—Field Operating Agency

**HATR**—Hazardous Air Traffic Report

**MAJCOM**—Major Command

**MOST**—Mission Oriented Simulator Training

**SA**—Situational Awareness

***Terms***

**Cockpit/Crew Resource Management (CRM)**—The effective use of all available resources--people, weapon systems, facilities, and equipment, and environment -- by individuals or crews to safely and efficiently accomplish an assigned mission or task. The term "CRM" will be used to refer to the training program, objectives, and key skills directed to this end. MAJCOMs may implement their programs as either "cockpit" or "crew" resource management based on their respective missions.

**Communication**—The act of sharing information with others to cause some kind of action: to direct, to inform, to question, or to persuade.

**Crew**—As used in this instruction, any collection of Air Force personnel who routinely work together to accomplish an Air Force mission. For example, an air task order-designated team of fighter pilots and airborne battle managers prosecuting an interdiction mission uses "crew" skills to maximize its effectiveness.

**Crew Coordination**—As used in this instruction the act of working with all the members of the crew to accomplish the tasks of the mission.

**Decision Making**—The ability to choose a course of action using logical and sound judgment based on available information.

**Flight Discipline**—The judgement and actions exercised by AF personnel to adhere to the spirit, intent, and written word of governing guidelines in the presence of temptation to do otherwise, while executing

the Air Force flying mission. It also includes the prioritization of tasks based on crew responsibilities to ensure safe mission accomplishment while demonstrating the highest degree of integrity in the performance of flight duties.

**Flight Integrity**—Utilizing all the members of a flying package to accomplish the mission at hand.

**Mission Debrief**—Reviewing and discussing mission accomplishment looking at what was achieved, what barriers were encountered and how the mission could be accomplished better next time.

**Mission Oriented Simulator Training (MOST)**—Training presented as a part of a CRM program in a realistic, operationally-based simulator environment in real time.

**Mission Planning**—Taking all of the information for a mission and developing short term, long term, and contingency plans to coordinate, allocate, and monitor crew/flight and aircraft resources. Effective planning leads to flight conduct that removes uncertainty, increases mission effectiveness and enhances safety.

**Risk Management**—Logic-based, common sense approach to making calculated decisions on human, material, and environmental factors before, during, and after Air Force mission activities and operations, i.e., on- and off-the-job.

**Situational Awareness (SA)**—In flying, this refers to a aircrew member's continuous perception of self and aircraft in relation to the dynamic environment of flight, threats, and mission, and the ability to forecast, then execute, tasks based upon that perception.

**Skills Criteria**—Defined skills used as the basis for operational training and evaluation. The characteristics of the skill are that they are easily identifiable and offer consistency in grading evaluation.

**Task Management**—The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environment changes.

**Attachment 2****IC 2001-1 TO AFI 11-290, COCKPIT/ CREW RESOURCE MANAGEMENT  
TRAINING PROGRAM**

11 APRIL 2001

***SUMMARY OF REVISIONS***

This interim change (IC) 2001-1 replaces the term *discipline* with *flight discipline* in paragraph **6.1.4**. This change also provides a definition for *flight discipline* in the Terms section in **Attachment 1**.

**6.1.4. Risk Management/Decision Making. (Decision Making)** Includes risk assessment, the risk management process, tools, breakdowns in judgment and *flight discipline*, problem-solving, evaluation of hazards, and control measures.

**Attachment 1**

**Terms** shall have the following definition added:

**Flight Discipline** -- The judgement and actions exercised by AF personnel to adhere to the spirit, intent, and written word of governing guidelines in the presence of temptation to do otherwise, while executing the Air Force flying mission. It also includes the prioritization of tasks based on crew responsibilities to ensure safe mission accomplishment while demonstrating the highest degree of integrity in the performance of flight duties.

**Attachment 3 (Added-AFMC)****AFMC CORE CRM CURRICULUM**

**AFMC Core CRM Curriculum.** The six fundamental areas are shown below with subareas to provide all facilitators, instructors, and evaluators with common ground from which to reinforce CRM principles. This attachment can also be used to develop local training syllabus or developing CRM scenarios. It also provides a baseline from which to evaluate performance.

**Situational Awareness**

- **Communication:** Crewmembers check in with each other during times of high and low workload to maintain situational awareness and to remain alert.
- **Automated Systems:** The crew establishes guidelines for the operation of automated systems (i.e., when they will disable systems and when they must verbalize and acknowledge programming actions).
- **Optimal Use:** When programming demands could reduce situational awareness and create work overloads, the crew reduces the level of automation or disengages automated systems.
- **Divisions of Duties:** The crew outlines the duties of the pilot flying and the pilot not flying with regard to automated systems (i.e., data entry and cross-checking).
- **Status Updates:** Crewmembers periodically review and verify the status of aircraft automated systems.
- **Coordination:** Crewmembers verbalize and acknowledge entries and changes to automated systems parameters.
- **Programming:** The crew plans for sufficient time for programming of flight management computer prior to maneuvers.

**Crew Coordination/Flight Integrity**

- **Team Building:** The crew establishes guidelines for coordination between all crew positions and ground or flight test personnel. The entire crew participates in briefings as a team, when appropriate.
- **Crew Environment:** Crewmembers establish and maintain a team concept and an environment for open communication (i.e., crewmembers listen with patience, do not interrupt or “talkover,” do not rush through briefings, make eye contact when appropriate).
- **Operational Situation:** The group climate matches the operational situation (i.e., presence or lack of social conversation). The crew also ensures these nonoperational factors do not interfere with necessary tasks.
- **Effective Inquiry:** Crewmembers openly ask questions regarding crew actions and decisions.
- **Effective Advocacy and Assertion:** Crewmembers speak up and state their information with appropriate persistence, until there is some clear resolution and decision.
- **Conflict Resolution:** When conflicts arise, the crews focus remains on the problem or situation at hand. Crewmembers listen actively to ideas and opinions and admit mistakes when wrong.

**Communication**

- Crew Briefings: Operationally thorough, interesting, and address crew coordination while planning for potential problems. The crew sets expectations on how to handle deviations from normal operations.
- Performance Feedback: Crewmembers provide positive and negative performance feedback at appropriate times and create a positive learning experience for the whole crew - feedback is specific, objective, based on observable behavior, and constructive.
- Feedback Acceptance: Crewmembers accept performance feedback objectively and nondefensively.
- Workload Communication: Crewmembers clearly communicate workload and task distribution and receive acknowledgment from other crewmembers. The crew allots adequate time to complete tasks.

**Risk Management and Decision Making**

- Aircraft Commander/Flight Lead Leadership: The aircraft commander coordinates activities to establish a proper balance between command authority and crewmember participation while acting decisively when the situation requires.
- Crew Participation: Crewmembers clearly state operational decisions to other crewmembers and receive acknowledgment. The crew includes all crewmembers and others when appropriate.
- Crew Preparation: The crew prepares for expected and/or contingency situations including approaches, weather, etc.

**Task Management**

- Task Prioritization: The crew prioritizes secondary operational tasks (e.g., completing required test points versus completing training events) to retain sufficient resources to deal effectively with primary flight duties.
- Fatigue: During long duty periods, crewmembers are proactive in remaining alert and plan and use fatigue countermeasures.
- Self-Imposed Stress: The crew's actions do not create self-imposed stress and additional workload (e.g., late descent due to lack of situational awareness/planning).
- Overload Recognition: Crewmembers recognize and report when their duties or the duties they observe others performing cause an overload.
- Stress Level: The crew remains calm under stress.

**Mission Planning/Debrief**

- Mission Planning: Did the planned mission match the flown mission? If not, what actions could the crew have taken to accomplish the planned mission?
- Debrief: The aircraft commander/flight lead should discuss, with the crewmembers' participation, the flight history. Emphasis should be placed on steps to enhance crew and mission effectiveness, and lessons learned.
- Communication: Test conductors, mission commanders, or designated representative will be the single point of contact with the aircrew for the mission, planning and coordination.

**Attachment 4 (Added-AFMC)****CRM TRAPS AND TOOLS**

This attachment was developed to highlight CRM areas that crews may want to consider when briefing CRM prior to flight and developing or evaluating CRM training scenarios. Units are authorized to reproduce this attachment and place it in local flight briefing guides.

**TRAPS** – Accidents have been caused by inadequate performance of people who had the capacity to perform effectively yet failed to do so. This ineffective behavior results from a combination of personality traits and attitudes. These “traps” become BARRIERS to effective teamwork. They reveal themselves on every flight; they are always there. We must constantly be aware of them and find ways to prevent them from not allowing us to achieve safe and efficient flight operations.

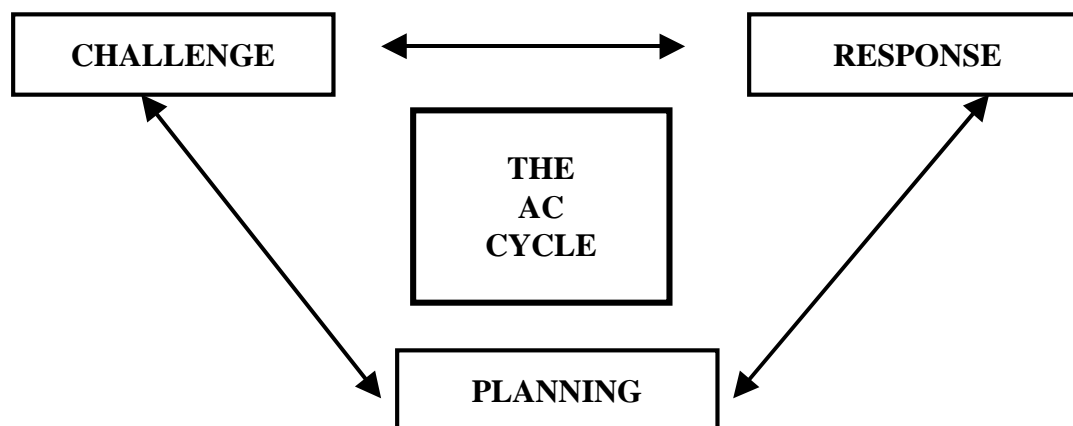
- **EXCESSIVE PROFESSIONAL COURTESY** – In general, we are hesitant to call attention to deficient performance in others, particularly if they are senior to us. Thus, even when one crewmember does address our performance, which is outside of established parameters, it is typically done with very little emphasis. For example, the copilot will usually inform the pilot that he or she is “a little fast” or “a little slow” no matter how far off he or she is.
- **HALO EFFECT** – The Halo Effect comes into play when an individual with a significant amount of experience on one type of aircraft is transitioning to a new type of aircraft. Typically that pilot or crewmember is given a very accelerated checkout on the new aircraft, because if they have so much experience on “X,” they can certainly handle “Y.” The “Halo” of expertise and the rush to get the person on line blinds everyone to the major differences between the aircraft and the need for a more extensive training program.
- **THE PASSENGER SYNDROME** – This is sometimes call the “Copilot Syndrome” and is based on a comforting premise that one or more other crewmembers have the situation under control and are looking out for your best interest. The Halo Effect can lead to Passenger Syndrome.
- **HIDDEN AGENDA** – Sometimes a crewmember may be making suggestions or decisions on information or desires the rest of the crew are not aware of, such as a strong desire to make it back to base due to important plans. We need to communicate honestly all motives involved so that decisions can be made rationally and based on the facts rather than on wishful thinking.
- **ACCOMMODATION SYNDROME** – This is a theory that explains a decreasing human arousal to a stimulus because of repetition combined with the passage of time. If a crewmember is subject to stress repeatedly during a mission, the theory holds that he or she would be less responsive to stress later in the mission. For example, a stressful event in any mission is the final descent and landing; and the landing phase is one of those where many accidents occur. The Accommodation Syndrome could cause a letdown during that high accident exposure time.
- **STRENGTH OF AN IDEA** – Strength of an idea can be defined as an unconscious attempt to make available evidence fit a preconceived situation. It has been observed that once a person or group of people get a certain idea in their head(s), it can be difficult or impossible for them to alter that idea no matter how much conflicting information is received. In a highly stressful situation it becomes even more important that we not allow our attention to focus or become channelized on only one area.

- **SUDDEN LOSS OF JUDGEMENT (SLOJ)** – This is a condition in which an individual’s decision making abilities become impaired. Even the most capable and experienced crews are susceptible to this condition. It’s generally precipitated by a real or perceived pressure to perform or by workload/stress related issues.
- **HAZARDOUS ATTITUDES** – There are six hazardous attitudes which can impede our good judgment and decision-making abilities and often lead to Sudden Loss of Judgement. These attitudes may be an inherent part of our personality, or may be a short term factor due to a particular situation. The six hazardous attitudes are:
  - Anti-Authority
  - Resignation
  - Invulnerability
  - Macho
  - Impassivity
  - Get there-itis
- **ERROR CHAIN** – While accident reports will mention an event that was the ultimate cause of the mishap, there are always “contributing causes.” This series of errors, poor judgment, and poor decisions led up to the final and fatal cause. Our task as professional aviators is to recognize the emerging “Error Chain” and “Break the Chain.”

**TOOLS** - Performance techniques and procedures can be developed, trained and used to avoid and defeat TRAPS. These practical TOOLS must be taken to the aircraft and used on every flight.

- **STANDARD COCKPIT OPERATING PROCEDURES (SCOP)** – These procedures provide a predictable environment for developing and reinforcing Crew Resource Management skills. By SCOP we mean a written set of procedures which go beyond the existing checklists, detailing:
  - Who flies the aircraft
  - Who briefs the emergency
  - Who makes the call outs and when
  - Who does the miscellaneous procedures
- **THE ASSERTIVE STATEMENT** – This is a nonthreatening method by which a crewmember can directly communicate his or her concerns about a situation with which they are uncomfortable. The five step process is: get the attention of the individual, state the concern, state the problem, offer a solution and then obtain agreement.
- **TIME OUT** – An assertive statement which provides a clear warning sign of a deviation or loss of situational awareness and provides an opportunity to break the “Error Chain” before a mishap occurs. It is designed to provide each crewmember the opportunity to voice inputs relative to the stated concern, which will improve the aircraft commander’s decision quality.
- **TWO CHALLENGE RULE** – This rule provides for automatic assumption of duties from any crewmember who fails to respond to two consecutive challenges. This overcomes our natural tendency to believe the pilot flying must know what he or she is doing, even as they depart from established parameters.

- **STERILE COCKPIT** – This requires “business only” discussions during periods of flight. The policy can happen when passing specific altitudes or upon completion of checklists, whichever fits your particular mission.
- **QPIDR** – This is an acronym for a decision making model. The letters represent **Q**uestion, **P**ropose **I**deas, **D**ecide, **R**eview. This model is also a synergy formula. Synergy will result if the crew will follow the model, because they are encouraged to participate in and make decisions.
- **AESOP** – Another acronym that allows aircrew to identify all risks prior to and during the flight. The five risk elements, which affect flight crew performance, are **A**ircraft, **E**nvironment, **S**ituation, **O**perational, and **P**ersonnel. Reviewing these can be a very effective mind-jogger to be sure that important (though less obvious) factors are not inadvertently overlooked.
- **ANTIDOTES FOR HAZARDOUS ATTITUDES -**
  - “Follow the rules; they’re usually right”
  - “Not so fast! Think first”
  - “It could happen to me”, “Taking a chance is foolish”
  - “I’m not helpless, I can make a difference”
  - “It’s better to get there late than not at all”
- **AIRCREW COORDINATION (AC) CYCLE** – The AC Cycle is a useful tool that can be applied throughout the flight. It is systematically organized, practical, and a very effective operational approach for coping with challenges as an integrated flight crew.



**Attachment 5 (Added-AFMC)****CRM BRIEFING/DEBRIEFING GUIDE**

Use this attachment as a guide for evaluating how well you or members of your crew/test team interacted during missions. Identify strengths or weaknesses that you or members of your crew/test team can build on with the focus on improving your CRM skills. Units are authorized to reproduce this attachment and place it in local flight briefing guides.

**Situational Awareness:**

Anticipates, monitors, prevents loss, recognizes own/ others loss, regains SA	Vs	Disoriented, confused, lost fixated
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**Crew Coordination/Flight Integrity:**

Leads, identifies roles/expectations, sets tone, respects, encourages, assertive	Vs	Judges, ridicules, over reacts, ignores, imposes, accepts error
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**Communication:**

Clear, concise, listens, interprets, efficient, gets/gives feedback	Vs	Interrupts, withholds, discounts, am- biguous, mumbles
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**Risk Management/Decision Making:**

Identifies/assesses problem, explores solutions, makes appropriate decision involves and informs crew	Vs	Avoids, delays, vacillates, argues, fails to consider consequences of
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**Task Management:**

Prioritizes, assign tasks, creates time, plans, delegates, checklist discipline	Vs	Rushed, overloaded, complacent
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**Mission Planning/Debrief:**

Objective, thorough feedback, nonthreatening, recaps key points solicits inputs, provides corrective actions	Vs	Rushed, incomplete, vague, lectures, blames, ignores
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